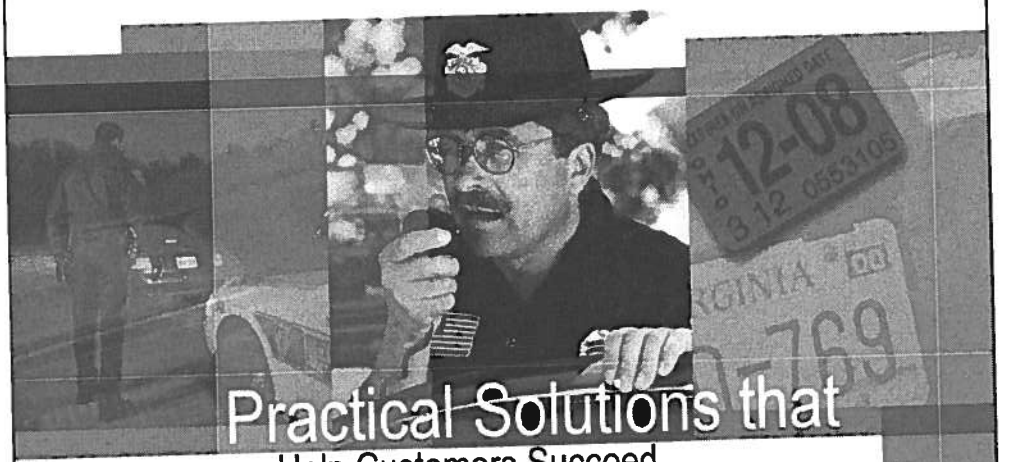
License Plate Reissues

Rationale and Benefits



Practical Solutions that
Help Customers Succeed

Purposes of a License Plate

- Safety
- Law Enforcement
- Motor Vehicle Revenue Collection
- Tolling Revenues – camera readable license plates
- State Image

3M

Law Enforcement - *Support from Police Chiefs*

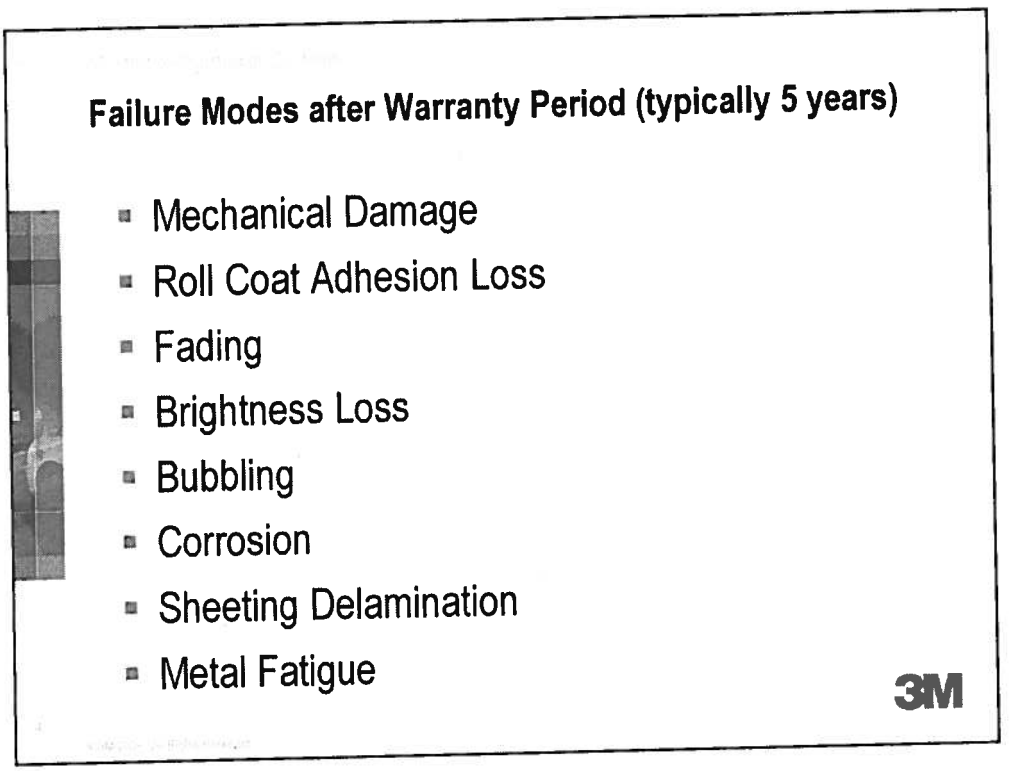
The International Association of Chiefs of Police (IACP) resolved in 2002 to support license plate reissues

*WHEREAS, **reissuance of license plates serves as a deterrent to those who would avoid registration and payment of motor vehicles fees** now, therefore, be it*

*RESOLVED, that the IACP, recognizing that the **efficient and reliable identification of vehicles is a critical element of national and state security procedures**, supports the issuance of fully-reflective, license plates with clearly identifiable registration numbers and state of registration, and **urges that states periodically issue new plates** to maintain effective vehicle identification and to protect the security and integrity of the vehicle registration process.*

Reissues encourage compliance and help with security

3M



Mechanical Damage: This is perhaps the most common failure mode and includes damage due to impact of road debris and of the vehicle hitting curbs, other vehicles, etc. It is common for these damage sites to have reduced brightness.

Roll Coat Adhesion Loss: This is where the roll coat inks may flake off the embossed alphanumerics over time, due to physical forces.

Fading: This includes the effects of UV radiation on colors which affect the legibility of the alphanumerics.

Brightness Loss: This is a gradual process inherent in the sheeting and may become very noticeable after five years. Potential for over 50% brightness loss soon after 5 years.

Bubbling: Process where the outer layer is infiltrated by air/water and freeze/thaw cycles, causing uplifting of the protective topfilm and visibility impairment of the plate identification area.

Corrosion: Metal substrates are subject to salts and other chemicals which are corrosive.

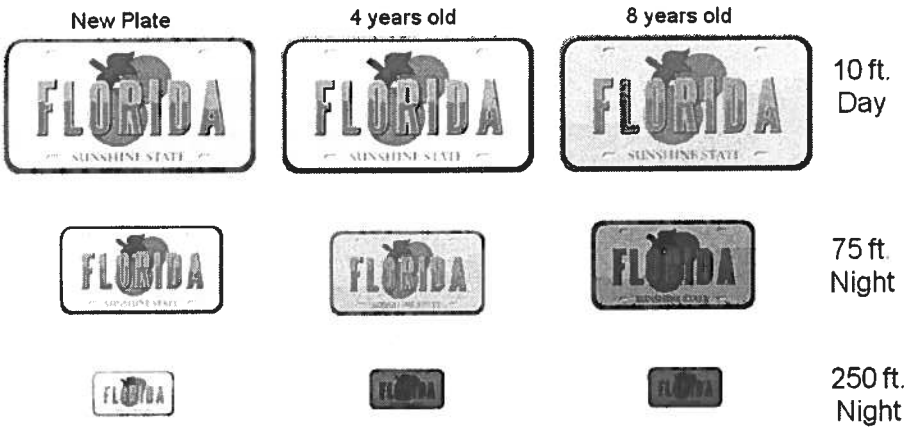
Sheeting Delamination or Edge Lifting: Process where the sheeting is infiltrated by air/water and freeze/thaw cycles, causing uplifting of sheeting and visibility impairment of the plate identification area. This infiltration may also occur at the plate edge. As seen in this picture, sometimes the sheeting will break off.

Metal Fatigue: Substrates (aluminum or steel), can break or crack due to continuous vehicle vibration, debris impact, and less costly, thin metal blanks.

Example of Fading

3M

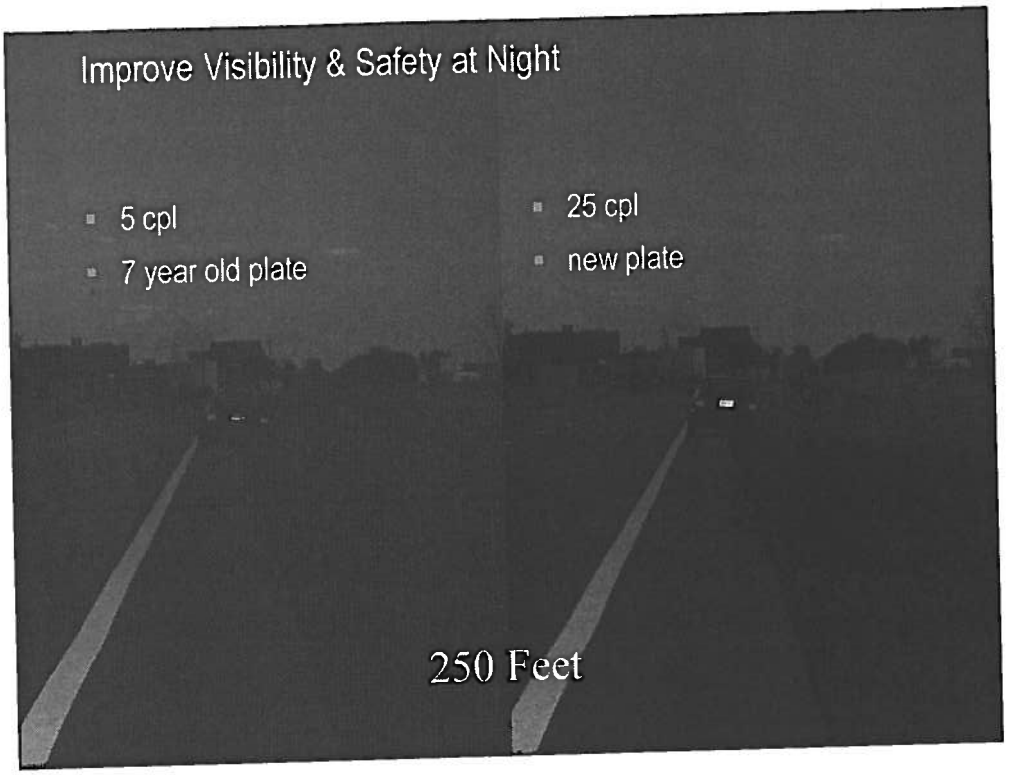
License Plate Visibility

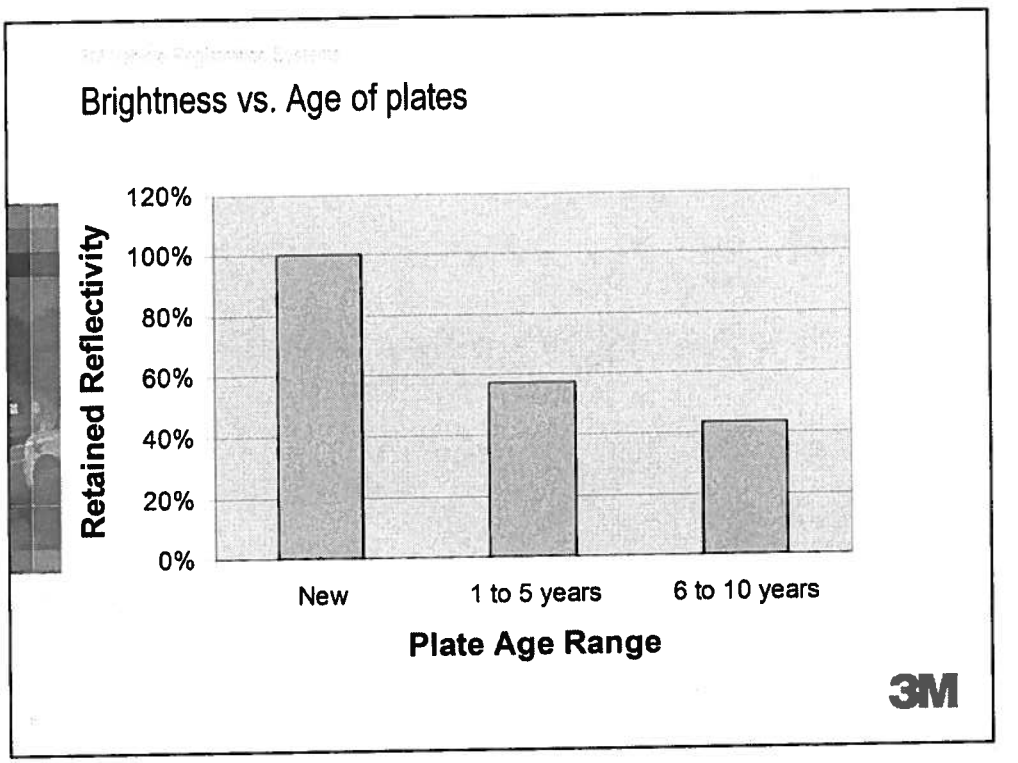


Day Time Photo

Night Time Photo

3M


Improve Visibility & Safety at Night
5 cpl
7 year old plate
25 cpl
new plate
250 Feet

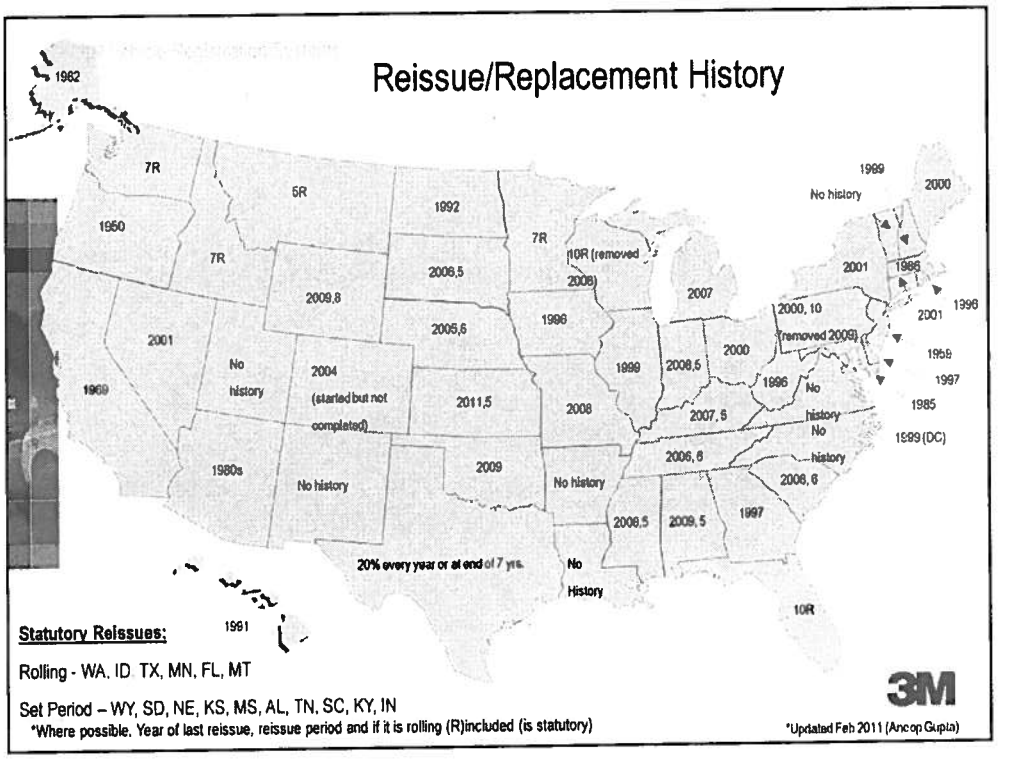


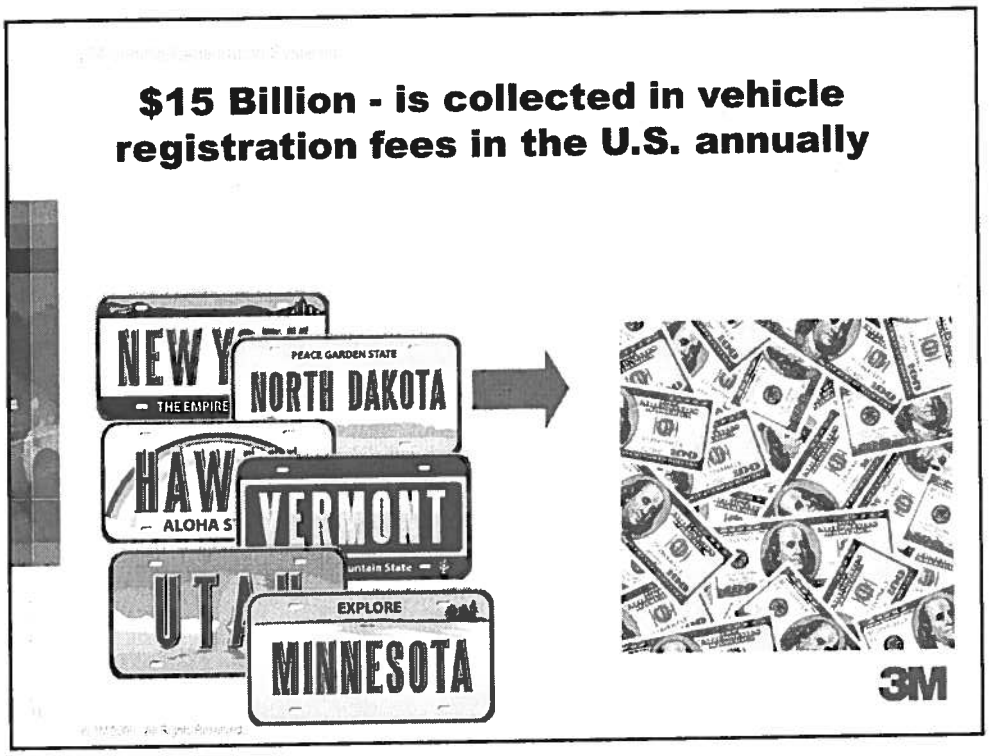
The following graph shows the overall brightness degradation of a limited sample of actual plates from several states across the country.

Retro-reflectivity measurements show that plates do lose their brightness values over time:

•Plates that are 1-5 years old on average exhibit 57% of the average initial retro-reflective value displayed by new sheeting

•Plates that are 6-10 years old on average exhibit 42% of the average initial retro-reflective value displayed by new sheeting

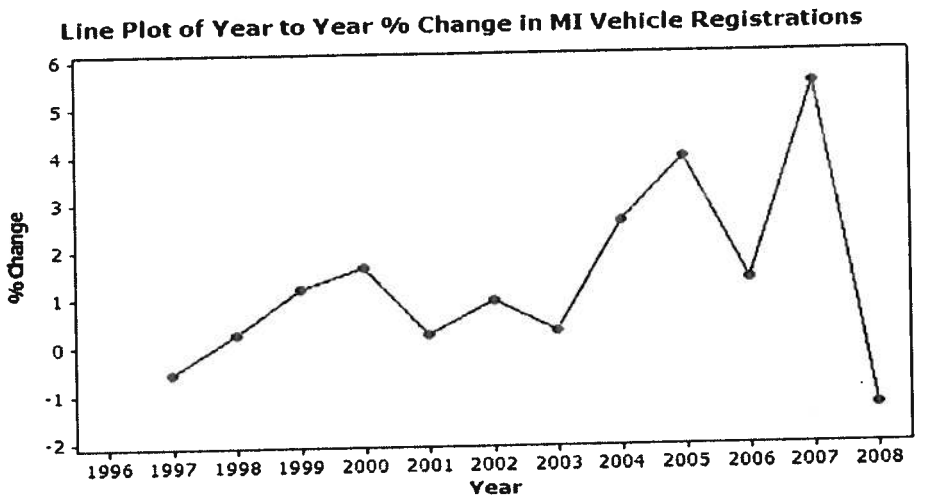

Reissue/Replacement History
1962
7R
1950
7R
5R
2009,8
1992
2006,5
2005,6
7R
10R (removed 2008)
1998
2001
No history
2004 (started but not completed)
2011,5
1980s
No history
2009
No history
20% every year or at end of 7 yrs.
No History
1999
No history
2000
2001
1986
2000, 10 (removed 2009)
2000
1996
No history
2008,5
2007
2007, 5
2006, 6
2006, 6
2008,5
2009, 5
1997
1989
No history
2000
2001
1996
1959
1997
1985
1999 (DC)
10R
1991
Statutory Reissues:
Rolling - WA, ID, TX, MN, FL, MT
Set Period – WY, SD, NE, KS, MS, AL, TN, SC, KY, IN
*Where possible. Year of last reissue, reissue period and if it is rolling (R)included (is statutory)
3M
*Updated Feb 2011 (Ancop Gupta)



Today, over $15 billion is collected in vehicle registration registration fees in the United States annually. This does not include an additional $7 billion worth of county property taxes that are collected in conjunction with the vehicle registration process in the United States each year. This is a valuable source of revenue to the states and is used to fund highway construction, road maintenance, public safety programs and many other general fund projects.

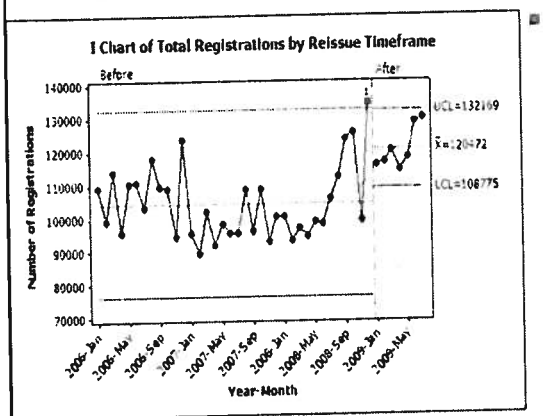
Michigan 2007 Reissue Data

FHWA Data



3M

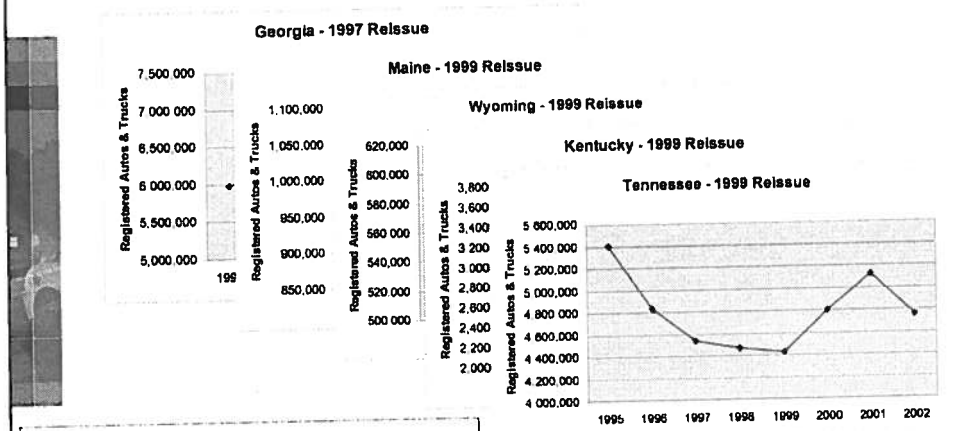
Oklahoma 2009 Reissue Data



- The average monthly registrations went from around 105,000 during the before reissue period to over 120,000 in the after reissue period

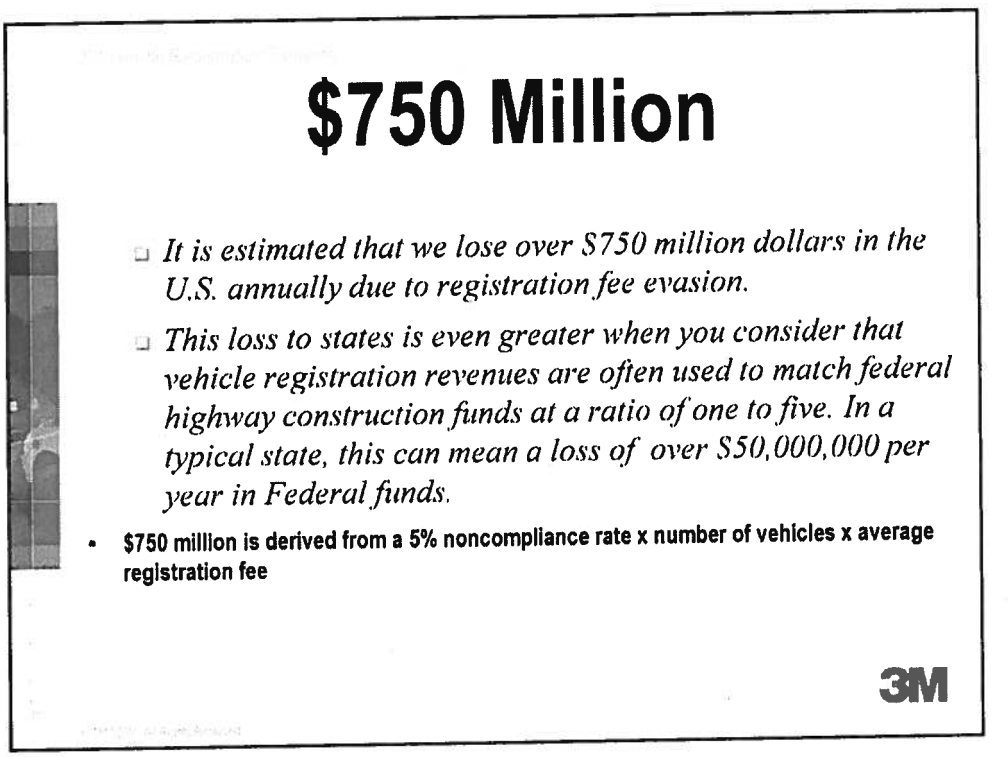
3M

Increased Registrations



Historically, states have shown an **increase in registration compliance** following a license plate reissue, which brings both **economic benefits** and an **improved image** to the state

3M

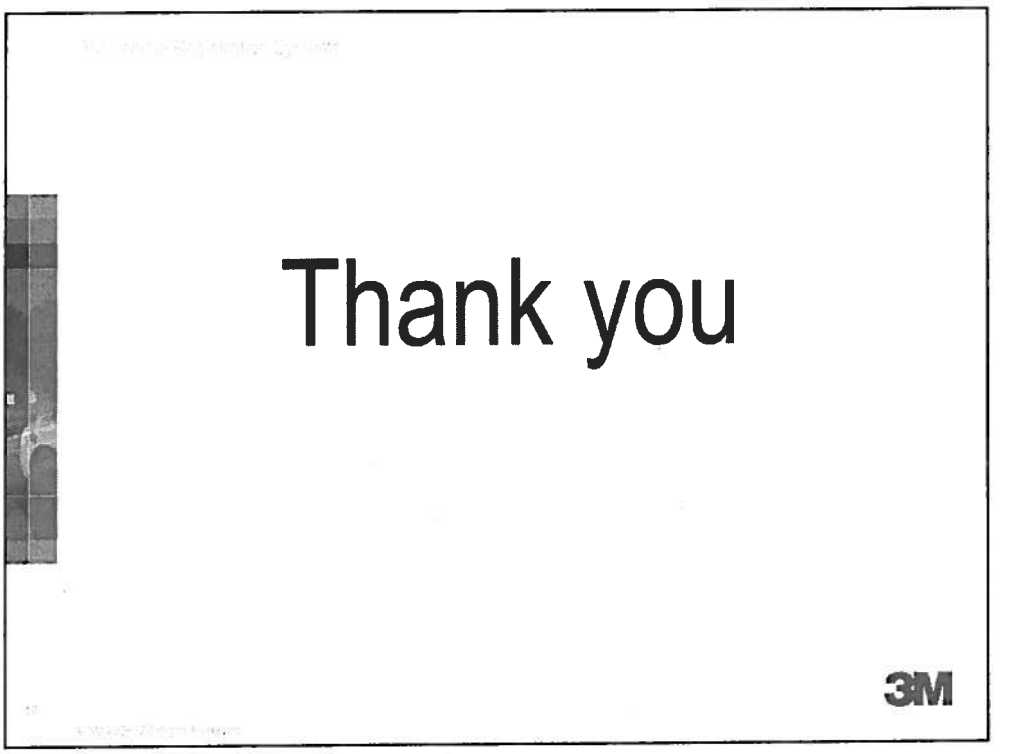


It is estimated that we loose over $750 million dollars in the U.S. annually due to registration fee evasion. This loss to states is even greater when you consider that vehicle registration revenues are often used to match federal highway construction funds at a ratio of one to five. In a typical state, this can mean a loss of over $50,000,000 per year in Federal funds.

Reissue Benefits

- ✓ *Law Enforcement*
  - *Readable license plates facilitate catching criminals*
- ✓ *Homeland Security*
  - *New electronic law enforcement and homeland security tools require readable license plates*
- ✓ *State Image*
  - *Attractive license plates boost state's image for residents, visitors, and others who see plates when drivers go out of state*
- ✓ *Tourism*
  - *Plates that promote activities or natural environment of state attract visitors*

3M


Thank you
3M

License Plate Aging and Visibility Risk Factors

License plates are subject to some of the harshest environmental conditions: Road salts, chemicals, petroleum spatter, high wind speed, extreme temperatures, UV radiation, humidity, and debris impact, to name a few.

The standard comprehensive warranty offered by a manufacturer covers license plate sheeting performance for a period of five years. After this period, it is recommended to replace the license plate in order to maintain performance characteristics. White sheeting, for example, has a specified brightness level of retro-reflectivity which must be maintained during the warranty period. In general practice, it is expected that within the first five years, the sheeting will still maintain about 50-80% of its original retro-reflectivity levels. Further accelerated retro-reflectivity drops are expected after the first five years and may represent significant losses and reduced night visibility for law enforcement. Environmental conditions will further diminish the retro-reflectivity, legibility and general appearance of the license plate. In addition to normal retro-reflectivity loss over time, various degradation modes of license plates have been observed.

Although the failure modes MAY NOT be typical for every state, they represent actual performance risk factors AFTER the manufacturer's warranty period. Some of these failure modes can occur anytime in the lifetime of a license plate, but the longer a plate is in service, the greater the probability a failure mode will occur. That's why it is recommended to replace license plates every 5 years to minimize such risk.

After the warranty period license plates MAY experience:

1. **Mechanical Damage:** This is perhaps the most common failure mode and includes damage due to impact of road debris and of the vehicle hitting curbs, other vehicles, etc. It is common for these damage sites to have reduced brightness.

2. **Roll Coat Adhesion Loss:** This is where the roll coat inks may flake off the embossed alphanumerics over time, due to physical forces.

3. **Fading:** This includes the effects of UV radiation on colors which affect the legibility of the alphanumerics.

4. **Brightness Loss:** This is a gradual process inherent in the sheeting and may become very noticeable after five years.

5. **Bubbling:** Process where the outer layer is infiltrated by air/water and freeze/thaw cycles, causing uplifting of the protective topfilm and visibility impairment of the plate identification area.

6. **Corrosion:** Metal substrates are subject to salts and other chemicals which are corrosive.

7. **Sheeting Delamination or Edge Lifting:** Process where the sheeting is infiltrated by air/water and freeze/thaw cycles, causing uplifting of sheeting and visibility impairment of the plate identification area. This infiltration may also occur at the plate edge. As seen in this picture, sometimes the sheeting will break off.

8. **Metal Fatigue:** Substrates (aluminum or steel), can break or crack due to continuous vehicle vibration, debris impact, and less costly, thin metal blanks.